

WHAT IS CLAIMED IS:

1. A method for manufacturing a highly-crystallized metal powder, comprising:

ejecting a raw material powder comprising one or more kinds of thermally decomposable metal compounds into a reaction vessel through a nozzle together with a carrier gas under the condition $V/S > 600$ where V is the flow rate of the carrier gas per unit time (liter/min) and S is the cross-sectional area of the nozzle opening part (cm^2); and

producing the metal powder by heating the raw material powder at a temperature which is higher than the decomposition temperature of the raw material powder and not lower than $(T_m - 200)^\circ\text{C}$ where T_m ($^\circ\text{C}$) is the melting point of the metal, in a state where the raw material powder is dispersed in the gas phase at a concentration of 10 g/liter or less.

2. The method according to claim 1, wherein the raw material powder is mixed and dispersed in the carrier gas using a dispersing apparatus prior to being ejected into the reaction vessel through the nozzle.

3. The method according to claim 1, wherein the particle size of the raw material powder has been adjusted beforehand.

4. The method according to claim 1, wherein the raw material powder is a composite powder of metal compounds containing two or more metal elements, and the metal powder is an alloy powder.

5. A method for manufacturing a highly-crystallized metal powder comprising:

preparing a raw material powder containing two or more metal elements, which are constituents of an alloy powder to be produced, at a substantially constant compositional ratio in individual particles of the raw material powder;

collecting the raw material powder;

dispersing the collected raw material powder in a carrier gas;

ejecting the carrier gas having the raw material powder dispersed therein into a reaction vessel through a nozzle under the condition $V/S > 600$, where V is the flow rate of the carrier gas per unit time (liter/min) and S is the cross-sectional area of the nozzle opening part (cm^2); and

producing the metal powder in the form of the alloy powder by heating the raw material powder at a temperature which is higher than the decomposition temperature of the raw material powder and not lower than $(T_m - 200)^\circ\text{C}$ where T_m ($^\circ\text{C}$) is the melting point of the alloy to be produced, in a state where the raw material powder is dispersed in the gas phase in the reaction vessel at a concentration of 10 g/liter or less.

6. A highly-crystallized metal powder which is manufactured by the method according to claim 1.

7. A highly-crystallized metal powder which is manufactured by the method according to claim 5.

8. A conductive paste which contains the highly-crystallized metal powder according to claim 6.

9. A conductive paste which contains the highly-crystallized metal powder according to claim 7.

10. A multilayer ceramic electronic part wherein conductor layers are formed using the conductive paste according to claim 8.

11. A multilayer ceramic electronic part wherein conductor layers are formed using the conductive paste according to claim 9.